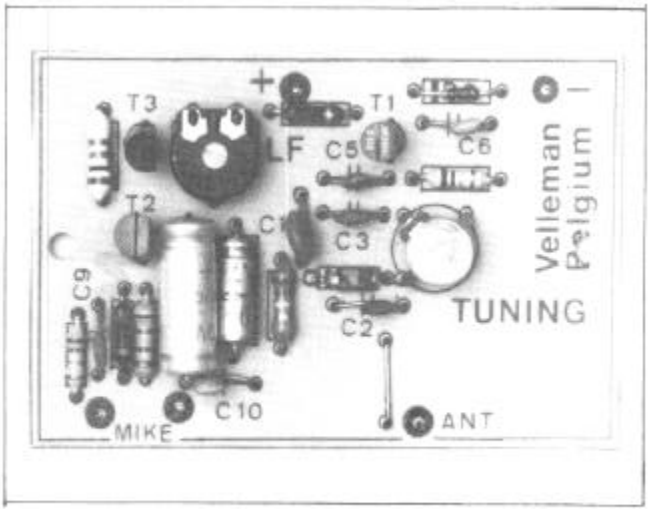
velleman·kit HIGH-Q

OSCILLATOR K1771

- Hi-fi quality by varicap modulation
- Ultra stable fet. oscillator
- Tunable from 100 to 108 Mc
- High impedance fet preamplifier
- Printed coils



FM OSCILLATOR

This FM transmitter may be split into two sections, namely : the HF section and the AF section.
The AF section is used to set an audio signal, issued by a microphone or any other source, to a certain level, so it may modulate. Therefore we took a FET input so we obtain a very high input impendance and all kind of sources may be connected to it. There is such a sensitivity that any type of microphone may be connected directly. For other sources, such as the output of a preamplifier etc..., we have to connect a potentiometer in front of this source to attenuate the signal so the AF amplifier will not overmodulate in this transmitter (see „How to connect the AF source, point 2")
A FET transistor was choosen to be the oscillator transistor for the stability, the selfs are of the «strip-line» type (printed on the p.c.b.) to make the construction easier. With the trimmer and oscillator frequency of approximately 100 to 108 MHz can be installed. A Varicap helps for the modulation. If build with care, there will be no problem.

CONSTRUCTION

o-Mount D1, varicap. Look for the correct polarity.
o-Mount D2, small signal diode 1N4148 (glass).
o-Mount the strap over the dotted line.
o-Mount R1, 100K resistor (brown-black-yellow).
o-Mount R2, 220K resistor (red-red-yellow).
o-Mount R3, 22 Ohm resistor (red-red-black).
o-Mount the 1K trimmer (R4).
o-Mount R5, 1K resistor (brown-black-red).
o-Mount R6, 56K resistor (green-blue-orange).
o-Mount R7, 1M resistor (brown-black-green).
o-Mount R8, 1K2 resistor (brown-red-red).
o-Mount C1, 5pF ceramic condenser.
o-Mount C2, 6pF ceramic condenser.
o-Mount C3, 15pF ceramic condenser.
o-Mount C5, 15pF ceramic condenser.
o-Mount C4, trimmer. If a small model is found in the kit, spread wide apart the leads, but do this with great care.
o-Mount C6, 1nF ceramic condenser.

o-Mount C10, 1nF ceramic condenser.
o-Mount C8, 4,7uF electrolytic condenser. Look for the correct polarity.
o-Mount C9, 100pF ceramic condenser.
o-Mount T1, FET transistor : BF245A or BF245B.
o-Mount T2, FET transistor : 2N3819.
o-Mount T3, PNP transistor : BC307-8-9 or BC557-8-9.
o-Mount C7, 100uF electrolytic condensor. Look for the correct polarity. Bend the wires so this condenser is flush with the circuit.
o-Mount a short wire at the output «ANT».
o-Connect a DC power supply to the points « + » and « — ». The voltage must be between 9 and 14 volts.
o-Connect a mike to the point «MIKE».

HOW TO CONNECT AUDIO SOURCES

Technical data :

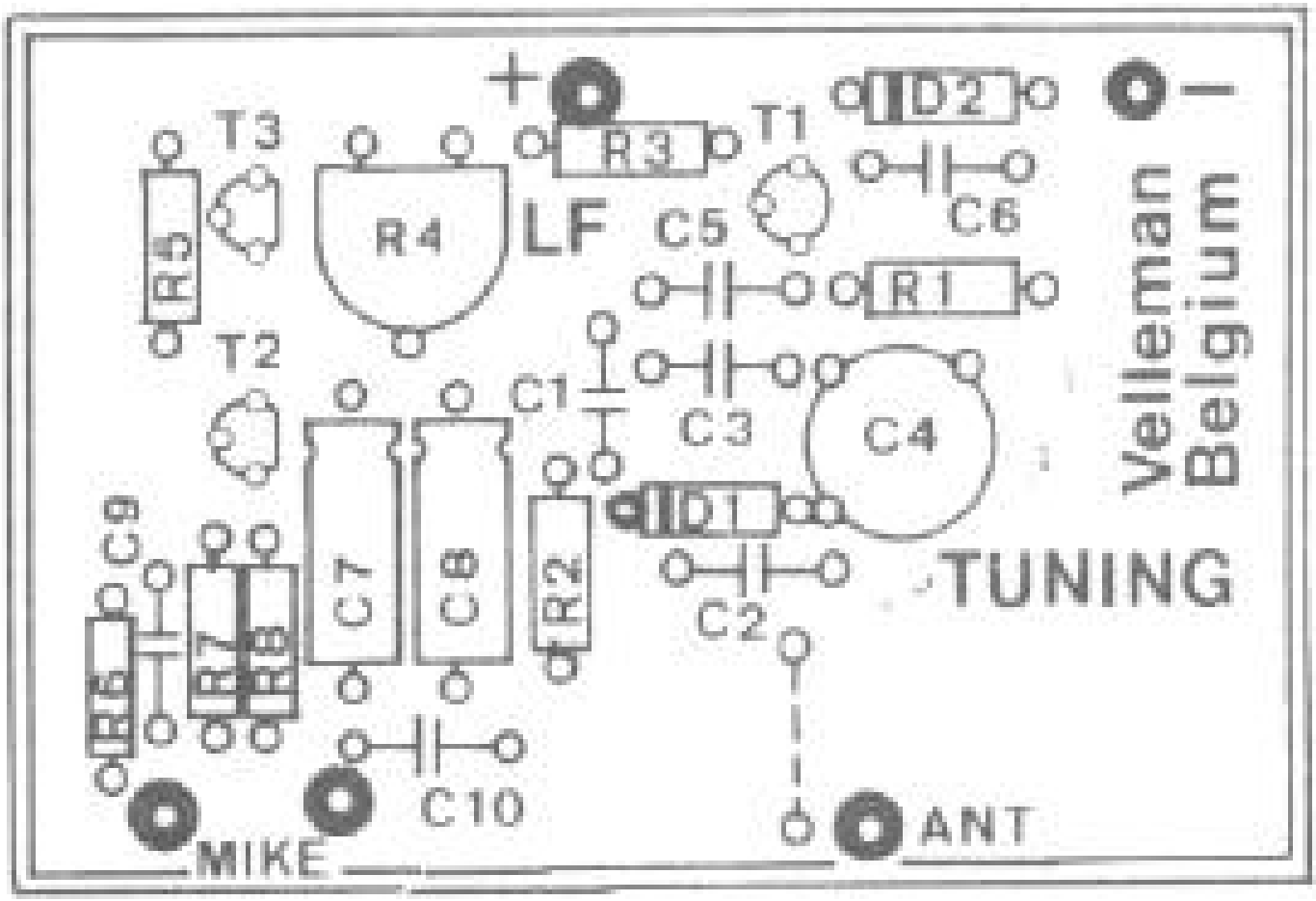
Input impedance : 1 MegOhm
Input sensitivity : 5 mV
Max. input signal : 10 mV.

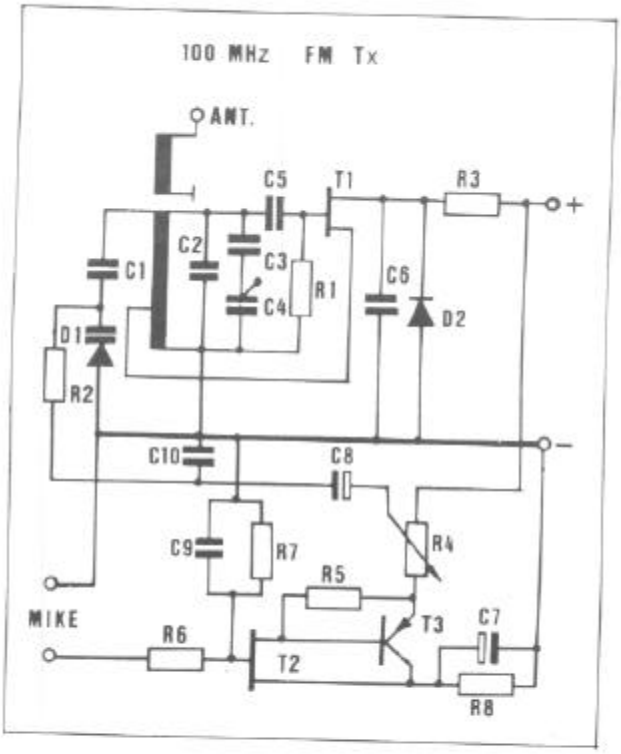
1) Connecting a microphone. Normally, any kind of microphone may be connected directly. Trim R4 to get enough modulation without distortion. There is no reason for overmodulation as the sound will be distortioned, and, another danger, your signal will present the so-called «catwiskers».

2) Connecting a signal coming from another source, such as : a preamplifier or a mixer. As these signals are too high they will overdrive the emitter. So we have to attenuate these signals. One can connect a potentiometer or a trimmer, the value of it being twice the output impedance of the source. Trim R4 for the highest modulation and adjust the attenuator so no distortion will appear.

ABOUT THE ATENNA

«How better the antenna, how better the station» is a known saying. The emitter's output impendance is 50 Ohms, as generally used. In its simpliest form, the antenna may be a wire having a lenght of 10 cm. If this antenna will do the job for your own application, do not use a more elaborated antenna. Any receiving FM antenna may be used as an emitting antenna.


+
R3
T1
D2
−
T3
R4
LF
C5
C6
R5
R1
T2
C1
C3
C4
Velleman
Belgium
C9
D1
TUNING
C7
C8
R2
C2
R6
R7
R8
C10
MIKE
ANT


100 MHz FM Tx
ANT.
C5
T1
R3
+
C1
C2
C3
C4
R1
C6
D2
D1
R2
C10
C8
−
C9
R7
R4
R5
MIKE
R6
T2
T3
C7
R8